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A new species of *Didymochelia* from New Caledonia (Crustacea: Amphipoda: Didymocheliidae)

by Jim K. LOWRY & Helen E. STODDART

Abstract. — Didymocheliid amphipods are extremely rare. *Didymochelia ledoyeri* sp. nov. is described from New Caledonian material. It is only the fourth specimen collected and the third species described. This is the first record of the family outside the subantarctic area.

Keywords. — Amphipoda, Didymocheliidae, taxonomy, new species, New Caledonia.

Une espèce nouvelle de *Didymochelia* de Nouvelle-Calédonie (Crustacea : Amphipoda : Didymocheliidae)

Résumé. — Les amphipodes didymocheliides sont extrêmement rares. *Didymochelia ledoyeri* sp. nov. de Nouvelle-Calédonie est seulement le quatrième spécimen capturé et la troisième espèce décrite. La famille est signalée pour la première fois en dehors de la zone subantarctique.

Mots-clés. — Amphipoda, Didymocheliidae, taxonomie, espèces nouvelles, Nouvelle-Calédonie.

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INTRODUCTION

The didymocheliids are among the rarest amphipods known. K. H. BARNARD (1931) first described *Didymochelia spongicola* from one specimen living among sponges at South Georgia. He was not able to place it in a family and the species has not been collected since. BELLAN-SANTINI & LEDOYER (1987) described the second species, *D. edwardi*, based on two specimens from Prince Edward Island. They established a new family, Didymocheliidae, and compared it to the Lysianassidae and the Acanthonotozomatidae. They considered the family to have closest affinities with the Lysianassidae.

A fourth specimen of *Didymochelia* has been discovered among recent MUSORSTOM collections from New Caledonia and is described here as *Didymochelia ledoyeri* sp. nov. The unique specimen is lodged in the Muséum national d'Histoire naturelle, Paris (MNHN).

In this paper we change the terminology we have previously used to describe setae and spines. This change is based primarily on arguments about the homology of setae and spines presented by OSHEL & STEELE, 1988, and WATLING, 1989. The terminology mainly follows WATLING, 1989, with a few modifications. What we have previously referred to as setae are now referred to as slender setae and what we previously referred to as spines are now called robust setae. What we previously referred to mainly as teeth (non-articulating extrusions of the cuticle), are now referred to as spines.

The following abbreviations are used on the plates : **A**, antenna; **G**, gnathopod; **MD**, mandible; **MP**, maxilliped; **MX**, maxilla; **P**, peraeopod; **T**, telson; **U**, uropod; **l**, left; **r**, right.

Didymochelia K. H. Barnard, 1931

Didymochelia K. H. Barnard, 1931 : 429. – K. H. Barnard, 1932 : 247. – Bellan-Santini & Ledoyer, 1987 : 367. – Barnard & Karaman, 1991 : 276.

Didymocheila J. L. Barnard, 1969 : 478 (*lapsus calami*).

Key to the species of *Didymochelia*

1. Pleonite 3 with dorsodistal boss; coxa 7 with produced acute posterodistal corner 2
— Pleonite 3 without dorsodistal boss; coxa 7 with non-produced subquadrate posterodistal corner ..... *D. ledoyeri* sp. nov.
2. Pleonite 3 with rounded dorsodistal boss ..... *D. edwardi* Bellan-Santini & Ledoyer
— Pleonite 3 with recurved acute boss ..... *D. spongicola* K. H. Barnard

Didymochelia ledoyeri sp. nov.

(Figs 1-3)

Type material. — Loyalty Basin east of Thio, New Caledonia, 21° 28' S 166° 21.5' E, depth 700-1265 m, collected from deep-sea submersible, *Cyana*, 3 March 1989, H. Zibrowius, CALSUB : stn PL 12 : 1 ♂, holotype, 4.5 mm (MNHN-Am 4484).

Etymology. — This species is named in recognition of the contribution of Michel Ledoyer to amphipod systematics.

Distribution. — *Didymochelia ledoyeri* is known only from New Caledonia in 700 to 1265 m depth.

Diagnosis

Peraeopod 4 : coxa without posteroventral lobe. Peraeopod 6 : coxa with rounded posteroventral corner. Peraeopod 7 : coxa with subquadrate posteroventral corner. Pleonite 3 without dorsal boss. Epimera 2-3 with tiny posteroventral tooth.

Description

Based on holotype male, female not known. Head and body : without setae, colour not known. *Head* : exposed, deeper than long; lateral cephalic lobe large, broadly rounded; rostrum absent; eyes apparently absent. *Antenna 1* : medium length, 0.23 × body; peduncular article 1 short, length 1 × breadth, distal margin with small midmedial swelling; peduncular article 2 short, 0.4 × article 1; peduncular article 3 short, 0.13 × article 1; accessory flagellum long, about 0.5 × primary flagellum, at least 3-articulate, article 1 long, 1.25 × article 2; flagellum 5-articulate; callynophore strong 2-field, without posterodistal setae or robust setae, without flagellar robust setae, calceoli absent. *Antenna 2* : slightly longer than antenna 1; peduncle without brush setae; flagellum 7-articulate, calceoli absent.

Mouthpart bundle : conical. *Epistome* and *upper lip* : fused. *Mandible* : incisors serrate, each with about 7 cusps; left and right laciniae mobilis present, left, a broad serrate blade, right, a distally cuspidate peg; accessory setal row with simple robust setae distally and distally cuspidate

pegs proximally; with pappose intermediate setae; molar columnar with weakly triturating surface, with large plumose seta on each molar; mandibular palp attached slightly proximally; article 1 short, length 1 × breadth, without setae; article 2 elongate, slightly broadened proximally, length 2.7 × breadth, 1.5 × article 3, with 7 posterodistal A2-setae; article 3 slender, blade-like, short, length 2.5 × breadth, with 4 (left), 5 (right) distal D3-setae, and 2 apical E3-setae.

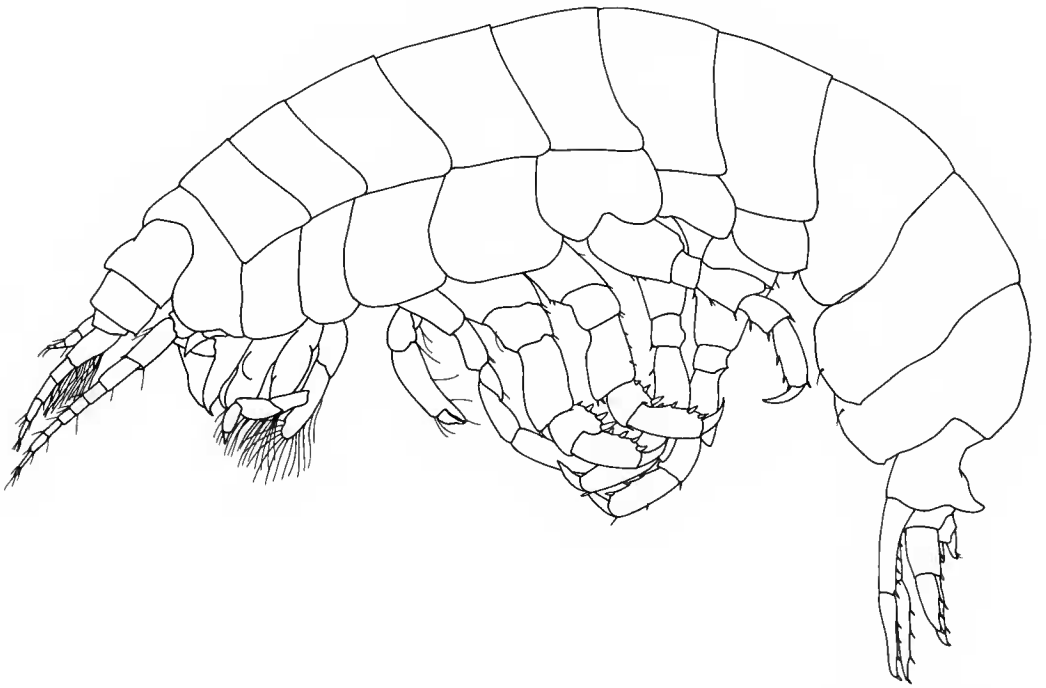

FIG. 1. — *Didymochelia ledoyeri* sp. nov., holotype male, 4.5 mm, MNHN-Am 4484, Loyalty Basin, New Caledonia.
Didymochelia ledoyeri *sp. nov., holotype, mâle 4,5 mm, MNHN-Am 4484, bassin des Loyautés, Nouvelle-Calédonie.*

Maxilla 1 : inner plate tapering distally, inner margin fully setose, 19 plumose setae; outer plate narrow with 9 long, slender multicuspidate setal-teeth; palp large, 2-articulate, with 13 long, plumose terminal setae. *Maxilla 2* : inner and outer plates broad, inner plate 0.9 × length outer plate, with well developed oblique setal row. *Maxilliped* : inner plate large, subquadrate, long plumose setae line apical and medial margins; outer plate small, subovate, with long, plumose apical, medial and submarginal setae; palp 4-articulate, article 2 slender, length 2.1 × breadth, subequal in length to article 3, article 3 long, slender, length 2.7 × breadth; dactylus well developed, unguis present (right dactylus damaged).

Peraeonites : 1 to 7 dorsally smooth. *Gnathopod 1* : chelate; coxa large, as long as coxa 2, anterior and posterior margins straight; basis long, slender, length 3.2 × breadth, anterior

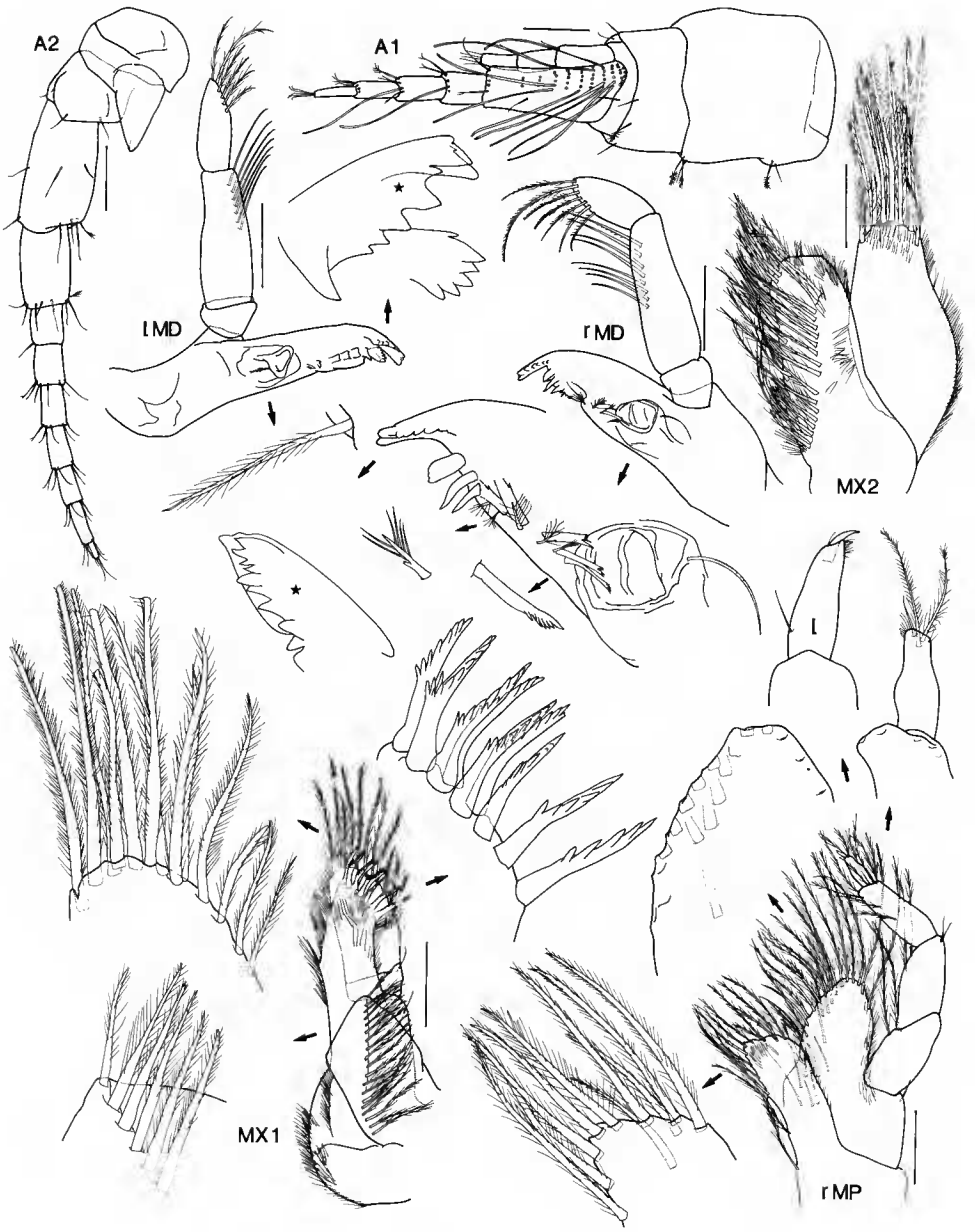

FIG. 2. — *Didymochelia ledoyeri* sp. nov., holotype male, 4.5 mm, MNHN-Am 4484, Loyalty Basin, New Caledonia. * Drawn from new moult. Scales represent 0.1 mm.

Didymochelia ledoyeri *sp. nov., holotype, mâle 4,5 mm, MNHN-Am 4484, bassin des Loyautés, Nouvelle-Calédonie. * Dessiné d'après une exuvie. Échelles = 0,1 mm.*

margin with 1 proximal simple seta; ischium short, length 1.3 × breadth; merus, posterior margin with a few simple setae; carpus subtriangular, short, length 1.3 × breadth, shorter than (0.5 ×) propodus; propodus large, subrectangular, length 2.3 × breadth, margins subparallel, posterior margin smooth, slightly concave, with a few plumose setae and very fine setae near posterior margin; palm extremely obtuse, margin straight, smooth, posterior corner without robust setae; dactylus simple. *Gnathopod 2*: chelate; coxa large, subequal in size to coxa 3; ischium short, length 1.7 × breadth; carpus subrectangular, long, length 2.6 × breadth, subequal in length to propodus; propodus large, subrectangular, length 2.7 × breadth, margins subparallel, posterior margin smooth, straight, with a few plumose setae and very fine setae near posterior margin; palm extremely obtuse, margin straight, smooth, posterior corner without robust setae; dactylus simple.

Peraeopods 3 and 4: coxa large, anterior margin straight with broadly rounded anteroventral corner, posterior margin straight; merus weakly expanded anteriorly with short robust setae along posterior margin; carpus short, broader than long, with short robust setae along posterior margin; propodus twice as long as broad, with 3-4 short robust setae and 2 distal locking setae along posterior margin; dactylus short, slender, with well developed unguis. *Peraeopod 5*: coxa bilobate, anterior lobe slightly produced; basis slightly expanded posteriorly with slightly rounded, smooth posterior margin; merus slightly expanded posterodistally with 2 distal robust setae; propodus with 2 robust setae and 2 distal locking setae along anterior margin; dactylus short, slender, with well developed unguis. *Peraeopod 6*: coxa small, slightly lobate posteriorly; basis slightly expanded posteriorly with straight, smooth posterior margin; merus slightly expanded posterodistally with 1 distal seta; propodus with 2 robust setae and 2 distal locking setae along anterior margin; dactylus short, slender, with well developed unguis. *Peraeopod 7*: coxa small, not lobate posteriorly; basis slightly expanded with sinusoidal, smooth posterior margin; merus slightly expanded posterodistally with 1 marginal robust seta and 3 distal robust setae; propodus with 2 robust setae and 2 distal locking setae along anterior margin; dactylus short, slender, with well developed unguis.

Gills: from gnathopod 2 to peraeopod 7, simple, small; gill on peraeopod 7 very small.

Pleonites 1 to 3: dorsally smooth. *Epimeron 1*: posteroventral corner rounded. *Epimeron 2* : posteroventral corner with tiny tooth. *Epimeron 3*: posteroventral corner with tiny tooth. *Urosomite 1*: large with well developed, subacute dorsal boss. *Urosomites 2 and 3*: very small. *Uropod 1*: peduncle with 4 dorsolateral, 1 apicolateral and 2 dorsomedial robust setae; rami subequal in length; outer ramus with 4 lateral robust setae; inner ramus with 1 medial and 2 lateral robust setae. *Uropod 2*: peduncle with 1 dorsolateral and 1 apicolateral robust setae; rami subequal in length; outer ramus with 2 lateral robust setae; inner ramus with 2 medial and 3 lateral robust setae. *Uropod 3*: peduncle short, with 1 slender seta; rami absent. *Telson*: length 0.75 × breadth, entire, distal margin truncated, with 2 pairs of subterminal penicillate setae and 2 short, terminal robust setae.

Remarks

Didymochelia spongicola K. H. Barnard, 1931 and *D. edwardi* Bellan-Santini & Ledoyer, 1987, are very similar. *Didymochelia ledoyeri* differs from both of these species in coxa 4 which has no posteroventral lobe, coxae 6 and 7 which are not produced and epimera 2-3, both of which have a tiny posteroventral tooth.

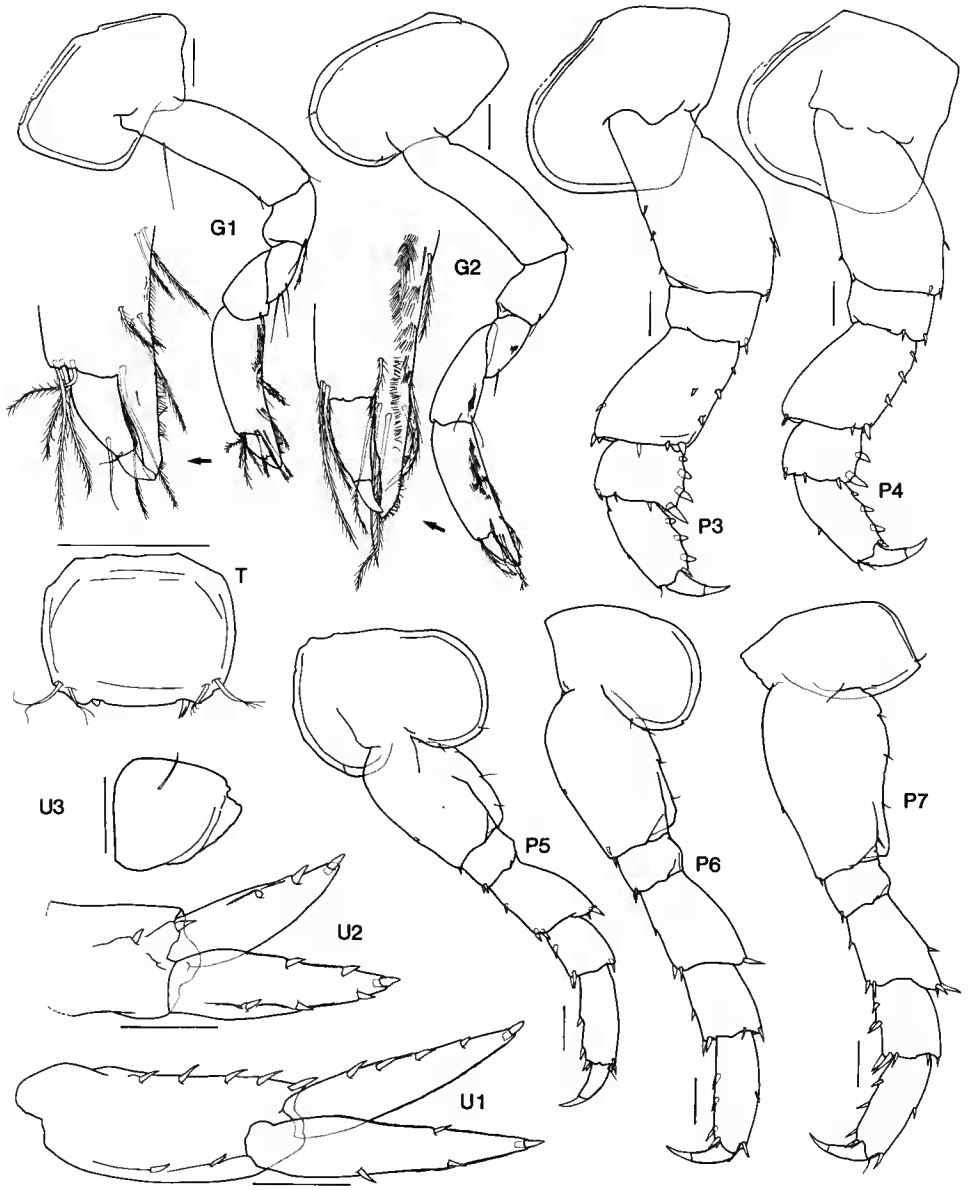

FIG. 3. — *Didymochelia ledoyeri* sp. nov., holotype male, 4.5 mm, MNHN-Am 4484, Loyalty Basin, New Caledonia. Scales represent 0.1 mm.

Didymochelia ledoyeri *sp. nov., holotype, male 4,5 mm, MNHN-Am 4484, bossin des Loyoutés, Nouvelle-Calédonie. Échelles = 0,1 mm.*

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